Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Request by Metrom Rail, LLC	)	DA. 18-284
For Waiver of Sections 15.519(a) and	)	
15.519(c) of the Commission's Rules	)	
	)	
	)	
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COMMENTS OF AVIATION SPECTRUM RESOURCES, INC.

Aviation Spectrum Resources, Inc. ("ASRI") hereby comments on Metrom Rail, LLC ("Metrom") on their waiver request in the above-captioned proceeding that aims to expand UWB systems for Positive Train Control (the "Waiver").[1] Unfortunately, ASRI must request additional details for the proposed waiver for §15.519(a) and §15.519(c) of the Commission's rules before confirming the potential of harmful interference to aviation safety services. The information requested below would assist in determining the protection, or constraints to future growth, of aeronautical safety allocations in the frequency range 3.1 – 5.3 GHz.

ASRI is the communications company of the U.S. air transport industry and is owned by U.S. airlines and other airspace users. ASRI sponsors of the Aeronautical Frequency Committee ("AFC")[2] which draws on expertise and opinions from across the U.S. aviation sector,

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[1] See Metrom Rail LLC Request for Waiver, Docket No. 18-284 (filed September 4, 2018): https://ecfsapi.fcc.gov/file/1092130939453/18-284.pdf

[2] Membership includes: Major airlines, helicopter operators and other airspace users, Airlines for America ("A4A"); Aircraft Owners and Pilots Association ("AOPA"); Helicopter Safety and Advisory Conference ("HSAC"); National Business Aviation Association ("NBAA"); National Air Transport Association ("NATA"); Helicopter Association International ("HAI"); International Air Transport Association ("IATA"); and Federal Aviation Administration ("FAA")

promoting the safe and efficient operation of commercial aviation radio communications systems operating within the U.S.

I. AVIATION SYSTEMS OPERATING WITHIN THE FREQUENCY RANGES BEING CONSIDERED

There are several important aviation safety systems between 3.1- 5.3 GHz, which could be susceptible to harmful interference by expanded UWB systems in the proposed deployment scenarios. 4 200 – 4 400 MHz is utilized by the Radio Altimeter within the ARNS allocation, as well as Wireless Avionics Intra-Communications (WAIC) in a co-frequency AM(R)S allocation. Additionally, the Commission is also currently considering implementing AeroMACS service rules in the AM(R)S allocations between 5 000 – 5 030 and 5 091 – 5 150 MHz.

The aviation industry is particularly concerned with protection of the radio altimeter given its critical role in aircraft navigation. Recent domestic and international regulatory activity has sensitized aviation to radio altimeter interference, with current testing being conducted to further refine interference models for avionics. Interference from in-band UWB waveforms like those described for the Metrom PTC system can cause desensitization of radar altimeters due to increased noise levels. This loss of sensitivity can degrade altimeter tracking performance and possibly lead to loss-of-track conditions during critical phases of flight, which can cause undesirable ripple effects in other aircraft systems used for traffic collision avoidance, terrain awareness, autopilot, and other safety-critical features. It is also possible for the interference to result in false altitude reports with similar safety implications.

II. OUTSTANDING INFORMATION REQUIRED BY AVIATION TO FULLY ASSESS SYSTEM IMPACT

While ASRI understands Metrom has previously taken reasonable mitigations to ensure protection of incumbent services, such as indoor citing and low antenna height for fixed infrastructure, it is uncertain if those mitigations will be available in all deployment scenarios

under the proposed waiver request. The fixed stations are "Typically mounted low to the ground – between 2 and 12 feet high"[3] but there may be portions of the track that are at higher elevation above ground and outdoors, that may cause a transmission to propagate further than expected or be located on or near airports where transmissions may cause harmful interference to avionics or existing aviation infrastructure. ASRI is therefore seeking more information on Metrom's proposed deployment and system parameters in order to properly assess any potential impact to aviation safety systems. These include:

- Transmitted signal power levels and characteristics?
- Installation information for fixed transmitting stations?
- The expected density of multiple fixed and mobile transmitting systems?
- The proximity to airports and known areas of aircraft operation in the takeoff, initial climb, approach, and landing phases of flight?
- How long the services deployed under this waiver would be operational?
- Are other chipsets/waveforms being considered for use in the Aura PTC System included in this waiver?

This information could be used to develop a composite worst-case scenario as the basis of further analysis of the effects of interference on several industry standard altimeters. The Metrom PTC Fact Sheet provided some of this information, but is not sufficient to develop such a scenario with an appropriate level of detail. Additionally, any scenario developed from the existing information would be subject to several assumptions which may not be valid in all proposed or future deployments.

[3] See Metrom Rail LLC Request for Waiver , Page 14

No matter what the outcome of assessment based on the above questions, to ensure any potential harmful interference to aviation operations can be mitigated immediately, the system should have a 'stop buzzer' function created, with a named point of contact that can be called immediately by potentially affected aircraft operators to turn off the system should interference be suspected.

III. CONCLUSION

Metrom has demonstrated the ability to provide appropriate engineering mitigation for a few rail operators in coastal cities. However, those mitigations and deployment scenarios may not be viable to protect existing incumbent primary services nationwide under the changes proposed in their waiver request. Until these uncertainties can be resolved and confirmed as a whole with the manufacturers of the affected aviation safety systems, ASRI requests the approval of a waiver be put on hold. ASRI is reaching out directly to the Metrom to discuss the above and assist in verifying with aviation manufacturers. It is hoped these discussions can be concluded quickly and the required UWB mitigations, if any, be implemented.

Respectfully submitted,

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